STRANGULATED HERNIA,

WITH CASES AND REMARKS UPON EARLY OPERATIVE PROCEDURE IN CASES OF DOUBTFUL DIAGNOSIS.

BY

OSCAR H. ALLIS, M.D.,

SURGEON TO THE PRESBYTERIAN HOSPITAL.

(REPRINTED FROM THE PHILADELPHIA MEDICAL TIMES.)

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THE history of cases is an important but not always an interesting feature in medical articles; still, as in three of the following cases there was in each an error, either in the *diagnosis* or in *practice*, a proper decision can only be arrived at by quite fully stating them. I shall after each defend the course pursued, and at the same time point out the source of error. Such a course is, I think, a fair and honest way of presenting cases. "We all learn by our mistakes," but it is a sad commentary upon the high position of our profession that successes are often *published*, leaving others to repeat the *unpublished* mistakes.

Had the responsibility of the following cases rested solely upon my own decision, I still should feel it a duty to publish them; but as able and experienced physi-

cians and surgeons were associated with me in them all, I am confident that the difficulty in the diagnosis or the reasons for the fatal or unfortunate delay will be accorded, even if it does not seem so plain from the narrative.

Case I.—John W., aged 59, Irish, married, healthy, a carpet-weaver. Two or three weeks previous to his attack of hernia had been considerably reduced by a persistent diarrhœa.

On Tuesday, September 29, went to market, purchased a bushel and a quarter of potatoes, and in attempting to carry them to the street-cars he experienced a sudden pain in the right groin. The pain was not immediately severe, and on his return home he went to the shop to work. The pain soon became severe, and he returned home.

The pain continued, and a surgeon (Dr. K.) was called in on the following day. He found nothing serious in the case, and did not return. On Thursday, a physician from a neighboring hospital was called in, who immediately recognized, *as he thought*, a hernia, obtained assistance, administered ether, and reduced the size of the tumor, but not to his entire satisfaction. As he could not see the case again he requested me to visit and take charge of it. I saw him on Thursday evening, October 1, sixty hours from the attack.

Condition since seizure.—There has been persistent pain in right groin since Tuesday morning, vomiting more or less frequent from the first, no movement of the bowels, constant thirst, but fluids taken immediately vomited, colored with bile. Pain (at my visit) ex-

treme ; face anxious, pinched, pulse frequent and feeble, belly distended and tympanitic, tongue moist and heavily coated with brown fur.

On examining the suspected parts, I found the right testicle drawn up to the mouth of the inguinal canal, swollen to nearly twice its normal size, and so exquisitely sensitive as to preclude any but the most gentle handling. The other testis was atrophied. There was a slight swelling along the course of the inguinal canal. This swelling was continuous with the testicle, and seemed to be the inflamed cord.

On the following morning (Friday), I called in consultation Dr. K. (the one who first saw the case). He assured me that there was no evidence of a hernia at his first visit, but that the physician who had subsequently visited him had been making unsuccessful attempts to push a testicle up into the inguinal canal, and that the resulting orchitis was the efficient cause of the peritonitis and the concomitant symptoms.

Friday evening.—Bowels still unmoved, vomiting persistent, testis still retracted but less swollen and tender. Vomited matter dark, shreddy, no odor save that of whisky and beef-tea. Saturday, Dr. K. and myself met a third surgeon in consultation. The symptoms were all carefully rehearsed, and both left doubting the existence of hernia.

Sunday morning.—As I could not get the services of either of the above, and as the symptoms persisted, I called in two others, but with no better success. The case was one of peritonitis. Death the following night.

Autopsy.—A hernia of small intestine, about two feet from the cæcal extremity. The

whole retained gut lies in the inguinal canal, and does not project beyond the external ring. The testicle (now of reduced size and apparently no larger than its fellow) lies at the entrance of the canal. It can be easily separated from the bowels, but in its swollen, tender condition, with the skin and fasciæ covering it, it would have been impossible to ascertain that fact. There is present general peritonitis. The gut above the hernia is greatly distended with fluid and gas; below it, it is empty. A probe can be passed along the side of the herniated bowel into the tunica vaginalis, showing that the hernia was of the so-called congenital variety.

Remarks.—Here was a case of a man, old, feeble, reduced by diarrhœa, injured by lifting, with local pain, vomiting, and obstipation, and the testimony of a physician that a hernia had been partly reduced under ether.

As an offset to this was the testimony of a surgeon of one of our principal hospitals, who saw the case upon the second day. He says there was no evidence of hernia, nor was the testicle retracted at the time of his visit, and it was his opinion that the physician who saw the case upon the following day (a recent graduate and an interne of one of our hospitals) had either mistaken a testicle for a rupture or had injured the former in attempting to reduce an imaginary hernia. He argued that the orchitis was due to rude manipulation, and

that the peritonitis was the sequel of the orchitis.

The early vomiting, nausea, and obstipation might have proceeded from the orchitis,* and the persistent vomiting from the peritonitis; and these facts, taken with an important condition,—*i.e.* the retracted swollen testicle,—and no greater enlargement in the course of the inguinal canal than would attend an inflamed spermatic cord, seemed sufficient in the minds of all I called to see the case to outweigh the possibility of a hernia.

It seems to me, reviewing coolly as I now can all the circumstances of the case, that great injustice was done the hospital physician in not deeming him competent to discriminate between a hernia and a testicle, or to think that his testimony was not of first importance when he said that he partially reduced it. His testimony, coupled with the strain, the persistent vomiting, obstipation, and local pain, should have rendered an exploratory operation imperative.

Case II.—Miss O. B., aged 43, one of three at a birth, and the first of the three to die. About two years ago noticed a tumor in the right groin that had been produced by a cough. The *lump was always present;* was troubled with obstinate constipation for the year preceding her death.

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* Curling on the Testis, p. 216.

On Thursday, July 22, 1877, Dr. L. was called to see the case. At the time of his visit her abdomen was distended and she was suffering from nausea and vomiting; pulse 80; skin cool and moist, and tongue slightly furred. An examination of the groin revealed a femoral hernia, that he was assured had been present for two years. She stated that her bowels had been freely moved by cathartic medicines upon the day previous. The tumor was quite firm and hard. The patient was dull and stupid, but she did not experience any unusual symptoms.

Bismuth and pepsin, and directions in regard to diet, were all that was prescribed.

Friday.—Patient has passed a comfortable night; nausea present, but no vomiting; slight pain about the epigastrium; no movement of the bowels. The patient seems brighter and more cheerful than upon previous visit.

Sunday.—Patient has been vomiting violently since Friday (Dr. L. was not notified of the change in her condition); vomited matter evidently from upper bowel, though no fecal odor; bowels confined; belly distended; pain in region of umbilicus. Pain of distention often relieved by eructations. Pulse 100, patient exhausted; pressure on abdomen does not increase but rather relieves the pain. Hernial tumor not so large or hard as on previous visit. Patient has made no allusion to the tumor as being the cause of her trouble. Patient duller than at previous visits. Could easily be aroused, and was then perfectly conscious and intelligent. A bag of pounded ice was directed to be placed over the tumor, and I was asked to see the case with him in the evening. At my visit chloro-

form was administered, and when the patient became relaxed and taxis used, the tumor, which was not inflamed nor imbedded among glands, became soft and gurgled. This seemed to demonstrate that the gut was not firmly grasped in the ring or canal, and as there was evidence that the hernia was an old incarcerated one, no other measures were taken than to continue the ice locally.

Monday morning.—Saw the case with Dr. L. at 10 A.M. Had passed a pleasant night; looked quite bright; had not vomited since last visit, and felt refreshed by the night's rest. No evidence of local inflammation. Tumor soft, and does not complain when it is handled. Abdomen still greatly distended; bowels confined; eructations but no vomiting; is dull, and inclines to sleep, but can easily be aroused.

Monday, 4 P.M.—There has been no vomiting since the administration of the chloroform. Patient retains her nourishment and medicine. Bowels still distended and confined. Hands cold, pulse almost imperceptible. Has failed rapidly within a few hours. Death at 9 P.M. A short time previous to her death she vomited a great quantity of fluid.

Autopsy.—An old incarcerated hernia in state of gangrene.

Remarks.—In this case there was evidence of a hernia, and a history of its presence for the past two years. Hence the question for us to decide was, *Are the symptoms those of strangulation?* There was no evidence of local inflammation. The tissues over the tumor were normal, and no inflammation of the neighboring glands

was apparent. The tumor grew soft and gurgled under taxis, giving us to believe that a passage was quite as possible as during the past years of incarceration. Her dull condition, which antedated the symptoms of strangulation, was not of course due to it; neither was it due to opiates, unless taken without the knowledge of her physician. To her dull condition may be assigned the cause for not recognizing the pain of constriction or the advancing peritonitis. She only complained of an uneasy distention, and said if this were relieved she would be well.

In this case the tympanitic distention, coupled with the presence of an old hernia, should have imperatively demanded an operation. It is highly probable that the *gaseous distention*, caused primarily by alimentary difficulty, *produced the constriction by dragging upon an incarcerated bowel.* There is no evidence of primary local inflammation, and our efforts at taxis established the fact that the tumor permitted of the passage of gas. *But the hourly increasing distention of the bowel produced a correspondingly greater traction upon the entangled gut, and rendered a passage impassable that had been pervious for two years.* I am not conscious that mention has been made of this condition of tympanitis in its special bearing upon old incarcerated hernia. It is a hypothesis that seems quite probable to me, and hence I have empha-

sized it for the consideration of those interested in this subject.*

Case III.—Mrs. R., æt. 50, had borne children; active, in good health. About six months previous to the present condition had suffered from a strangulated hernia. In this instance the hernia (right femoral) had been constricted about twenty-four hours before her family physician was summoned. Vomiting and great local pain, obstipation, with a tumor, were the symptoms that led to the belief that a hernia was present; and on appropriate manipulation the pain and vomiting disappeared, but not the tumor. This was only partially reduced, and left the physician in doubt of the restoration of the gut until the fecal passages returned. A suspicious tumor remained for at least ten days, when it disappeared.

In March, 1876, she had a similar attack. The hernia came down while she was at work. She was unable to reduce it, and was obliged to quit work and go home. This occurred on Monday evening. She was seen on Tuesday, at 2 P.M., by the same physician. Vomiting, and great suffering referred to the femoral canal, with obstipation and a tumor, led him to suspect a second strangulation. The taxis without an anæsthetic was again employed, but not satisfactorily. The tumor was only diminished in size. Still, the pain was relieved,

* Dr. Curtin has given me notes of a case that bears upon this point. A female suffered from metritis, was cured, and died seven years later. At the autopsy a part of the sigmoid flexure of the colon was found attached to the fundus of the uterus (the result of the old metritis), and death had been caused by a gaseous distention of the bowel, which made a kink in the flexure and rendered it impossible for fecal matters to pass.

and, thinking that the bowel, if unreduced, would return under the use of opium suppositories, they were prescribed. At his return in the evening of the same day he found her comfortable. On Wednesday he visited her. There were no other signs of unreduced bowel than the tumor, which, it will be remembered, persisted in the first instance. On Thursday the tumor had increased in size, and I was asked to see the case. It was now three days since the physician had applied taxis. The pulse was almost normal; the skin (to the hand) seemed natural; the face looked a little anxious, but no more so than under ordinary circumstances of sickness. There were no signs of peritonitis save a somewhat tympanitic but not tender abdomen. There was a tumor in the right femoral region as large as a flattened orange, of an irregular outline, nodular as if made up of enlarged glands, and red as if said glands were undergoing inflammatory softening. The enlargement was ascribed to the involvement and inflammation of the glands, and we (a surgeon, the family physician, and myself) deemed it well to delay what we all felt would be but an exploratory operation. On the following evening (Friday, about ninety-six hours from the first seizure) an operation was decided upon. The diagnosis was correct so far as the enlarged glands were concerned. The irregular outline and local inflammation were correctly ascribed to them, but buried among them was a hernia, consisting chiefly of omentum, with a small knuckle of intestine, both in an advanced stage of gangrene.

Remarks.—In this case there was vomiting and pain for eighteen hours, *i.e.*, up

to the employment of taxis (on Tuesday). From that time to my first visit, *an interval of two days,* there had been no vomiting, and the skin, pulse, and general condition of the patient were not indicative of one suffering from a strangulated bowel.

Was the physician in error in employing and continuing the use of opium, when, as he says, he was morally certain that in his efforts at taxis he had not fully returned the bowel? I think he was, although in doing so he was following a line of treatment that has been prescribed for a century. The instruction that has been found so often salutary is, "If the first efforts at taxis are unsuccessful, give a full anodyne, apply cold locally, and return, before the effect of the morphia has passed off, and make a second effort. If then the result at taxis is unsuccessful, no further good results can be expected from it, and the consideration of more effective measures is in order." The error was not in employing opium, but *in continuing* its use. The effects of a full dose of opium would have measurably passed off in twelve hours, and then the patient would have again become conscious of her condition. As it was, a grain opium suppository every second or third hour caused her to pass through the successive steps of local and general peritonitis and gangrene without exciting a suspicion of her critical condition.

Case IV.—Mrs. F., æt. 58, a widow. Dr. N., her family physician, was called to see her at 2 A.M. of Friday, November 24, 1876. The attack was similar to previous colicky seizures, and morphia was administered for its relief. Vomiting commenced about ten hours later, and persisted until evening, when the suspicions of Dr. N. were aroused, an investigation made, and hernia of the right femoral region detected. Efforts were made, under ether, to reduce it, with apparent success. On Saturday, the symptoms persisting, copious enemata were repeatedly administered. These brought away some fecal matter, and afforded temporary relief. About eight hours after the last enema the patient passed quite a copious liquid stool, with considerable flatus, and felt immediate and almost complete relief. Sunday morning the symptoms of obstruction were unmistakable, and I was sent for. I did not see the case until 5 P.M. Operated; bowel livid and rapidly approaching gangrene.

Hardly had she recovered from the effects of the anæsthetic when she was seized with excruciating pain about the heart and between the shoulders, and vomited as before. A hypodermic gave her complete relief. About midnight she had a slight movement of the bowels, and expressed herself as without an unpleasant symptom.

Pain about the heart returned on the following day, and she expired eighteen hours after the operation.

Remarks.—In this case the unusual feature is that although the enemata seem to have been returned almost immediately after they were administered, and that too

without much relief, an apparently natural evacuation, accompanied with flatus and almost complete relief, occurred about eight hours after the last one had been administered. Nothing can in this case be laid to the treatment, as the attending physician had recommended an operation upon the day following the strangulation. It was not until after it was too late that consent was given.

It is further worthy of note that there was no previous history of hernia, and no unusual straining to provoke one. It seems to have attracted her attention first at midnight. If so, this is the second case I have known in which the patient was aroused from sleep with strangulated hernia, having retired without any unusual symptoms.

The *diagnosis* of intestinal obstruction is one of the obscurest and often one of the most unsatisfactory that the surgeon is called upon to make. Dr. Hunt, of the Pennsylvania Hospital, says of hernia, "I have seen the best and worst of surgery connected with it;" and George Pollock, in a masterly article in Holmes's Surgery, says, "The causes of intestinal obstruction are so various, its occurrence is fraught with so much danger, its symptoms are so severe and distressing, its diagnosis is so obscure, and its treatment is so uncertain and so often unsuccessful," that he enters upon the subject with extreme reluctance.

In a recent treatise on surgery, the author gives the following diagnostic symptoms of strangulated hernia; I have placed his words in italics, and indicated them by quotation-marks. He says, "*Strangulation is marked by total and usually sudden constipation.*" This is true, and is always possible, in point of fact; but in Case II. the bowels had been freely opened by cathartic medicines *the day before* she sent for her physician, and hence the fact of no movement of the bowels that day, or for two or three days, is not significant. Habitual constipation is so frequent, and persons insensible to unusual amounts of cathartic medicines are so numerous, that this symptom is of only secondary value. One of my patients says that she habitually goes three weeks without a movement of the bowels. This is unusual, as she is of active habit. Another, an old man, confined to his bed, goes an equal time.

In Case No. IV. the patient had quite a natural movement, with flatus and subsidence of pain. Of course this was from the bowel below the constriction, but is worthy of note, lest it mislead in a similar case.

"*Urgent vomiting, at first merely of food, then of bile-stained matter, next of the contents of the small intestines, and finally of fæces.*"

In Case No. III. there was no vomiting from Tuesday until Friday night, though the gut was constricted and gangrenous at

the time of operation. The opium given might have controlled the vomiting, yet there was not enough administered to give a bystander the impression that she was under its influence.

The early setting in of vomiting, and its urgency, will, I think, depend upon the tightness of the constriction, and the character of the vomiting will depend upon the region of the bowel that is constricted.

In Case No. I. the vomiting was continuous for five days, but at no time of a suspicious odor, neither is it possible to have the suspicious odor with "fæces," unless the constriction is below the fecal-forming function of the intestine. In only one of the four cases was there fecal vomiting. Besides, fecal vomiting may be present in peritonitis, and thus this symptom of vomiting, *and even fecal vomiting*, a symptom that is associated with manifold diseases, contributes nothing positive to the diagnosis.

"*There is great distress and pain, usually in the tumor, and almost always in the neighborhood of the umbilicus, frequent irritable pulse, dry and brown tongue, tympanitis, and often considerable tenderness of the abdomen and distress of countenance.*"

With the exception of the allusion to the pain in the tumor, all the above symptoms are true of incipient peritonitis, and hence if there is no tumor present, as in

Case I., the diagnosis of strangulated hernia is not clear. His remaining points in the diagnosis relate to the advanced stage of the constriction, and these resemble the inflammatory stage of peritonitis and the typhoid condition of gangrene.

It is to the *early*, not the *remote*, symptoms in all cases of strangulation that one must look for reliable data. The instant general peritonitis sets in, the greater masks the lesser local pain, and the tympanitic distress renders the patient often oblivious to active inflammatory changes. The history of the first twenty-four hours has therefore a far greater value than subsequent revelations, and these hours should be most carefully and critically interrogated and their information constantly kept in mind.

The symptom of tympanitis, which is always decidedly pronounced in intestinal obstruction, is valuable, but it does not enable us to determine positively that the obstruction is due to hernia.

As careful as are the authors in their descriptions of this distressing disease, emphasize as they may *this* or *that* diagnostic feature, it still remains impossible for the most experienced among them to determine or point out positively in obscure cases the true condition of things. *There are no infallible symptoms*, and, though the strongest assurance may rest in the mind of the attending physician of

the true condition of the case, still he can only say, "I think such is the case."

What then is to be done? Is the case to be abandoned? We certainly do abandon it when we take no measures to determine positively the suspected injury. We certainly do abandon it when we render our patient oblivious to his peril and share his belief that he is better. With vomiting or nausea, with local pain, with obstipation and distended abdomen, especially when these symptoms appear suddenly, we have good reasons for suspecting a strangulated bowel; and if these symptoms remain unexplained for twenty-four hours an exploratory operation is not merely justifiable, but it is demanded. In Case No. I. such a procedure would have enabled me to map out the relation of the testicle and cord to the canal, and to have detected the gut, that was confined wholly within it. No harm would have been done the inflamed testicle; on the contrary, the depletion and removal of the tense overlying structures would have been salutary. In Case No. III. the operation was finally undertaken in the midst of doubt, and our gratification at finding the diagnosis a lucky one was more than counterbalanced by the chagrin of seeing the bowel in a state of gangrene.

If an exploratory operation were a grave affair or would diminish the chances of recovery, it would not be suggested in this

place. But such is not the case. Let the hidden nature of the disease be what it may, the cutting through the skin and overlying fascia cannot prove a serious complication. Such a course is hardly more than opening a bubo.

I am well aware that such a course would meet with much opposition, and, in case of faulty diagnosis, might expose one to unmerited ridicule from the envious and ignorant; but such considerations are unworthy a true physician, and will not weigh a feather in comparison with the relief that he may be able to afford, or the death that may be averted.

THE EARLY OPERATION FOR STRANGULATED HERNIA.

A PHYSICIAN practising in an adjoining county said to me, "I recall six operations for strangulated hernia, and all of them were fatal." My rejoinder was, "I recall six cases, and only two of them were fatal." To my question, How soon did death occur after the operation? he replied, "In one the patient was dead before the operator had cleaned his instruments; in a second the operator had not reached home, a distance of five miles; a third died during the afternoon; and none of them survived the operation twenty-four hours." In the two fatal cases that I alluded

to, the operation was performed by a skilful surgeon, but death supervened on the following day: so that in the eight cases the issue was in no way attributable to the operation.

Such a fatality as this recorded of the operation for strangulated hernia must certainly have a bad effect upon the popular mind. With the people it is the operation that kills, and not the rupture. They look upon the operation as offering but a slight chance of relief. They recall cases operated upon by the most eminent surgeons that resulted in death, and hence they often meet one at the outset with, "Doctor, no cutting. If the patient is to die, let him die without any cutting."

But the patient and friends are not to be blamed for their obstinacy. It is the boast of some physicians that they have never failed to reduce a strangulated bowel; and some even venture to say that if a bowel is not returned in its early stages it is a reflection upon the skill of the attending physician. In a case of strangulation occurring in a neighboring city a man was about to be operated upon, when another physician was called in and succeeded in relieving it by taxis. The circumstance was repeatedly narrated to me as a great triumph over surgery, and no doubt hundreds of families stand sponsors for the achievement, and will hand it down to posterity, little dreaming that that one successful case may

exert a fatal influence upon *scores* that will follow in its path.

The reduction of hernia by taxis must vary with the varying circumstances of each individual case. When the ring is large and the canal (as in old herniæ) necessarily short, one may say with propriety, "I reduced the hernia;" but when the canal is long and narrow, *then nature, and nature only,* can reduce it. I have seen cases that it would have been impossible to restore without traction *from within the abdominal cavity. It is only when the bowel can assist the taxis that reduction of small herniæ is possible.*

There are surgeons of large and valuable experience who would not resort to taxis when the strangulation had persisted twenty-four hours, especially if efforts had during that time been made to relieve it. If called in such a case they would operate without delay. Their reasons, founded on experience and common sense, are, that mortification must be imminent at this time, and that any resort to manipulation must not only imperil the vitality but also endanger the integrity of the constricted bowel. This is a most important point, and it would be a good rule of practice *to institute no manipulation after twenty-four hours,* especially if the symptoms have been accompanied by violent and continuous vomiting.

Neither is it safe to leave it to the judg-

ment whether the time has arrived for operative procedure or not. *The time has arrived the instant nature, assisted by the best-directed efforts of the physician, has failed.* Before the introduction of anæsthetics, ice and opium had their value; but, taxis failing after complete relaxation from the former, the knife should be resorted to, certainly no later than twenty-four hours, and this will often be found to be too late. What is to be gained by delay? Will the swelling of the entangled gut, the outpouring of serum and lymph, the advancing peritonitis, and the hourly lessening strength of the patient accomplish what earlier and more favorable measures have failed to do?

That the experience in individual cases may mislead one, may be seen in the wide difference in three cases of femoral hernia. The first made a good recovery after six days of strangulation; the second survived (with temporary artificial anus), the operation having been performed on the fifth day; while a third died two days and a half from the first constriction. Death in some cases may fairly be attributable to shock, and occurs before inflammatory symptoms can be detected. Indeed, who can estimate the prostration from such long-continued and paroxysmal pain, aggravated by violent and repeated vomitings?

The operation for the relief of a strangulated gut is dreaded, and I think without

sufficient reason, by many practising physicians who skilfully perform more difficult operations. No physician practising obstetrics would be exonerated from neglect to possess and skill to use the forceps, and yet the patient and well-directed labor that qualifies him for the assumption of the latter responsibility will fit him for a far less bloody and possibly less important one, for in the latter case only one life is placed in jeopardy.

I shall not attempt in this article to clear up anatomical difficulties that so perplex the student. I know of no way to relieve his mind when, after listening to lectures upon this subject, he comes forward with the pertinent questions, "*If in oblique inguinal hernia we are to cut upward and outward to avoid the epigastric artery, and in direct inguinal hernia we are to cut upward and inward for a similar reason, how are we to determine its position in old inguinal hernie, which we are told may be either direct or indirect, and without a possibility of determining which?*"

And again, "*In femoral hernia, to cut outward will endanger the vein; to cut downward will do no good; to cut inward will not relieve the constriction; while to cut upward, the only direction that will relieve the constriction, will endanger the obturator artery in one case in three and a half.*"

In such a dilemma it is not to be wondered at that the student leaves college

dreading hernia more than any other branch of his future work; and yet from years of "quizzing" I can say that there is not a department of medicine upon which teachers are more thorough than upon the one under consideration. The anatomy and various steps in the operation are too clearly enunciated in the text-books to require repetition here.

The chief danger in the operation is in the last step,—*i.e.*, the one that liberates the constriction. Here two structures impede the operation. The *gut* has been wounded by Lawrence, Sir A. Cooper, Cloquet, Jobert, and Liston, and in fourteen cases severe and at times *fatal hemorrhage* has followed this last and most important step.

To render the operation as free from danger as possible, many hernia directors and hernia knives have been constructed. I have never seen an operation in which the finger was not the best and safest guide. By the forefinger of the left hand the constriction can be detected and the bowel held out of the way, while at the same time it furnishes a guide for the blade of the knife as it is carried to the point of constriction. Still, there are times when the most skilful and most experienced operators have found a director necessary, and, as such an instrument is of but a trifling cost, it is best to possess one.

Through the skill and patience of Messrs. Tiemann & Co., of New York, I have

added to my case of instruments a herniatome that I think will render the operation free from the dangers that have been enumerated.

Fig. 2 represents the instrument when taken apart; *a*, the blunt-pointed blade; *b*, the nut that controls the movements of the shield; *c*, the shield that may be made to conceal or expose the blade by turning the nut *b*.

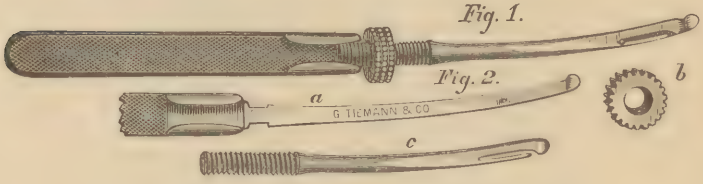

Fig. 1 represents the knife closed and ready for use. The blade is entirely covered, and cannot be made to cut anything. In this condition the blunt point of the knife may be carried down along the finger to and beyond the constriction, and the little notch seen just behind the blunt point be made to catch the constricting band. The blade by turning the nut can now be gradually uncovered, while at the same time the tip of the instrument is pressed against the fibres of the ring, which will yield as soon as it comes in contact with the cutting edge.

To those who are accustomed to the operation of hernia, suggestions are very

commonplace. It is to those who dread the operation, but who feel the importance of being prepared for it, and to those whose experience is as yet meagre, that such an instrument recommends itself. Its cost will not greatly exceed that of the ordinary blunt-pointed herniatome; and, inasmuch as it will take the place of two instruments,—the hernia knife and the blunt-pointed bistoury,—it will be cheaper in the end.

1328 Spruce St., Philada., July, 1877.